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FEE TRANSMITTAL For FY 2005

Applicant claims small entity status. See 37 CFR 1.27

TOTAL AMOUNT OF PAYMENT	(\\$)	250
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Complete if Known	
Application Number	10/751,359
Filing Date	01/05/2004
First Named Inventor	Richard C. Wilmoth
Examiner Name	Derek S. Boles
Art Unit	3749
Attorney Docket No.	03-0898.01

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FEE CALCULATION

1. BASIC FILING, SEARCH, AND EXAMINATION FEES

<u>Application Type</u>	<u>FILING FEES</u>		<u>SEARCH FEES</u>		<u>EXAMINATION FEES</u>		
	<u>Fee (\$)</u>	<u>Small Entity</u>	<u>Fee (\$)</u>	<u>Small Entity</u>	<u>Fee (\$)</u>	<u>Small Entity</u>	<u>Fees Paid (\$)</u>
Utility	300	150	500	250	200	100	_____
Design	200	100	100	50	130	65	_____
Plant	200	100	300	150	160	80	_____
Reissue	300	150	500	250	600	300	_____
Provisional	200	100	0	0	0	0	_____

2. EXCESS CLAIM FEES

Fee Description

Each claim over 20 (including Reissues)

Each independent claim over 3 (including Reissues)

Multiple dependent claims

<u>Total Claims</u>	<u>Extra Claims</u>	<u>Fee (\$)</u>	<u>Fee Paid (\$)</u>	<u>Small Entity</u>	<u>Fee (\$)</u>	<u>Fee (\$)</u>
- 20 or HP =	x	=		50	25	

HP = highest number of total claims paid for, if greater than 20.

<u>Indep. Claims</u>	<u>Extra Claims</u>	<u>Fee (\$)</u>	<u>Fee Paid (\$)</u>	<u>Multiple Dependent Claims</u>	<u>Fee (\$)</u>	<u>Fee Paid (\$)</u>
- 3 or HP =	x	=		360	180	

HP = highest number of independent claims paid for, if greater than 3.

3. APPLICATION SIZE FEE

If the specification and drawings exceed 100 sheets of paper (excluding electronically filed sequence or computer listings under 37 CFR 1.52(e)), the application size fee due is \$250 (\$125 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).

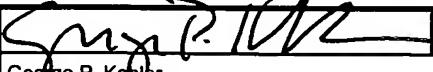
<u>Total Sheets</u>	<u>Extra Sheets</u>	<u>Number of each additional 50 or fraction thereof</u>	<u>Fee (\$)</u>	<u>Fee Paid (\$)</u>
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4. OTHER FEE(S)

Non-English Specification, \$130 fee (no small entity discount)

Other (e.g., late filing surcharge): Appeal Brief Fee 250

SUBMITTED BY

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This collection of information is required by 37 CFR 1.136. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 30 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

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Practitioner's Docket No.: 03-0898.01



**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF PATENT APPEALS**

In re Application of:
Wilmoth, Richard C.

Examiner: Derek S. Boles

App. Serial No.: 10/751,359

Art Unit: 3749

Filed: January 05, 2004

Title: *Orientation Independent
Compartment Pressure Relief Valve*

APPELLANT'S APPEAL BRIEF

Mail Stop Appeal Brief - Patents
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Dear Honorable Commissioner:

Appellant hereby submits its Brief under 37 C.F.R. § 1.192 in support of its appeal, notice of which was filed under 37 C.F.R. § 1.191 on April 26, 2006.

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REAL PARTY IN INTEREST

The real party in interest is CGR Valley Products, Inc., a North Carolina corporation having its principal place of business at 4655 US 29 North, Greensboro, North Carolina.

RELATED APPEALS AND INTERFERENCES

There are no other appeals and/or interferences known to Appellant.

STATUS OF CLAIMS

Appellant has appealed to the Board of Patent Appeals and Interferences from the final rejection of Claims 1 through 17.

STATUS OF AMENDMENTS

No amendments have been entered subsequent to the Final Office Action mailed January 12, 2006. However, Appellant has attached hereto as Exhibit B, an Amendment under 37 C.F.R. §1.116 and respectfully requests the entry thereof prior to the adjudication of the merits of this appeal. It is believed that the amendments place the claims in condition for allowance and are supported by the Detailed Description and the Drawings.

SUMMARY OF THE INVENTION

The summary of this invention is taken from the specification and particularly from the detailed description thereof, as amended, which begins at paragraph [0017] of the specification and continues through paragraph [0036] thereof, and which is reproduced below. It is believed that this detailed description, which is relatively short, comprises a concise explanation of the invention defined in the claims at issue in this appeal. To facilitate review of the following description, a copy of the drawings to which the description refers is attached hereto as Exhibit A.

DETAILED DESCRIPTION

[0017] The various embodiments of the present invention and their advantages are best understood by referring to Figures 1 through 5 of the drawings. The elements of the drawings are not necessarily to scale, emphasis instead being placed upon clearly illustrating the principles of the invention. Throughout the drawings, like numerals are used for like and corresponding parts of the various drawings.

[0018] This invention may be provided in other specific forms and embodiments without departing from the essential characteristics as described herein. The embodiments described above are to be considered in all aspects as illustrative only

and not restrictive in any manner. The following claims rather than the foregoing description indicate the scope of the invention.

[0019] A pressure relief valve 100 according to the present invention comprises a housing 101 defining at least one throughflow channel 105. Housing 101 has inlet 102 and exhaust 103. When mounted in the wall of vehicle 120, inlet 102 orients to the interior of compartment 130 defined by the vehicle wall, and conversely, exhaust 103 orients to the exterior of compartment 130. Throughflow channel 105, therefore, allows fluid communication from the interior to the exterior of compartment 130.

[0020] Flange 104 is disposed about the inside wall of housing 101 and defines aperture 107 within throughflow channel 105. Sealing flap 110 covers aperture 107 defined within throughflow channel 105, and is attached to housing 101, according to the present embodiment, by a single edge 112 and lays upon valve seat 106 which is the side of flange 104 facing exhaust 103. Sealing flap 110 is dimensioned so as to provide a margin such that sealing flap 110 rests on valve seat 106.

[0021] Sealing flap 110 comprises a relatively pliable layer 113 and a relatively rigid layer 114. Hereinafter, for convenience, relatively pliable layer 113 may sometimes simply be referred to as “pliable layer” and relatively rigid layer 114 may sometimes simply be referred to as “rigid layer.” Sealing flap 110 is situated such that pliable layer 113 is oriented toward inlet 102 and contacts valve seat 106 when sealing flap

110 is in a closed position. Rigid layer 114, therefore, is oriented toward exhaust 103. In this embodiment, sealing flap 110 may be between about 0.007" to about 0.040" in thickness.

[0022] Pliable layer 113 may be made from a suitable rubber or elastomeric providing relatively high flexibility and light weight. Inventor has had success using an ethylene propylene dieneter polymer (EPDM) rubber sheet approximately from 0.005" to about 0.030" will allow deviation to the upper and lower specifications. EPDM exhibits high tensile strength and excellent resistance to punctures, UV radiation, weathering and microbial attack. It is also highly flexible material with a low co-efficient of thermal expansion and contraction. Other materials that may be used for the pliable layer 113 include a sponge form of EPDM, neoprene, nitrile, or santoprene. Pliable layer 113 may be molded or extruded. It will be appreciated by those skilled in the arts that when sealing flap is in the closed position pliable layer 113 is sealingly engaged with valve seat 106.

[0023] As shown in Figure 1, rigid layer 114 may be bonded or laminated to pliable layer 113 such that both layers form a single integrated sealing flap 110. As customers often determine pliable layer's thickness, the rigid layer should be 0.002" to about 0.010". In this embodiment, rigid layer should be made from a material compatible with such a bonding or lamination process. Rigid layer 114 may be bonded to pliable

layer 113 in a variety of ways known to those skilled in the relevant arts. Rigid layer 114 may be fabricated from rigid mylar, nylon, polypropylene, polyethylene, high-density polyethylene (HDPE), Lexan®, or even stainless steel metal shim stock. Rigid layer 114 should be formed from material that is only somewhat flexible but with sufficient shape memory to quickly seek its original shape after being flexed. In addition, it should be compatible for use with the material selected for the pliable layer. Advantageously, in manufacture, once pliable layer 113 and rigid layer 114 are bonded together to become an integrated sheet, sealing flap 110 may be obtained simply by cutting the integrated sheet to desired dimension.

[0024] In operation, pressure within a sealed compartment may increase due to running of an air conditioner or by simply shutting compartment doors. Such pressure is in communication with pressure relief valve 100 and, specifically, with pliable layer 113 of sealing flap 110. When pressure within compartment 130 is sufficiently great, enough force is exerted on sealing flap 110 to cause it to open exteriorly allowing air to escape, thus relieving pressure within in compartment 130. Therefore, sealing flap 110 is constructed such that it is sufficiently lightweight and flexible to allow actuation of sealing flap 110 when compartment internal pressure rises above outside pressure.

[0025] When pressure within compartment 130 has decreased, opening force is no longer exerted on sealing flap 110. Rigid layer 114 now functions to bring sealing flap

110 to its closed position in whereby pliable layer is in sealed contact with valve seat 106. Rigid layer 114 is formed of a material which displays shape memory characteristics. Thus, after rigid layer 114 has been deformed due to the opening of sealing flap 110, rigid layer 114 will seek to return to its starting shape which is where sealing flap 110 is in its closed position.

[0026] Rigid layer 114 is stiff enough to maintain its shape opposing a force of about 1 g assuming acting on sealing flap. For example, if pressure relief valve 100 is oriented such that sealing flap 110 is parallel to the earth and rigid layer is downward and pliable layer is atop rigid layer, rigid layer possesses sufficient shape memory, or stiffness, to prevent sealing flap 110 from sagging or falling open. At the same time, rigid layer 114 is sufficiently flexible to allow sealing flap 110 to flex open in response to pressure from the interior of compartment 130. An advantage of this embodiment is that as rigid layer 114 seeks its original shape, it relatively slowly forces sealing flap 110 back to the closed position. The result is a substantial reduction of undesirable flapping noise normally attendant with gravity-closed flap-type valves.

[0027] Figure 2 is an expanded view of another embodiment of the present invention where sealing flap 210 is a non-integrated flap assembly of two separate components comprised of pliable layer 213 and rigid layer 203. In this embodiment, rigid layer 203 is not bonded or laminated to pliable layer 213 but simply overlays pliable layer 213

and is secured to housing 101 along with pliable layer 213 at edge 205b. Rigid layer 203 may be fabricated from rigid mylar, nylon, polypropylene, polyethylene, high-density polyethylene (HDPE), Lexan®, or even stainless steel metal shim stock or any other polymeric demonstrating lightweight and adequate rigidity and may be between about 0.002" to about 0.10" in thickness. Pliable layer 213 may be between about 0.005" to about 0.30" in thickness.

[0028] It will be appreciated by those skilled in the relevant arts that the flexibility and weight of sealing flap assembly 210 may be adjusted by forming rigid layer 203 as a comb structure. The number and width of the comb's tines, obviously, affect the flexibility of rigid layer 203, i.e., the fewer the tines and the thinner the tines, the more flexible will be rigid layer 203. However, the greater the flexibility, the less support rigid layer 203 will be able to provide to close sealing flap 210.

[0029] With reference to Figure 3, a further embodiment of the invention is presented. Pressure relief valve 300 includes housing 101 with a throughflow channel 105 inlet 102 and exhaust 103. Flange 104 is disposed about the inside wall of housing 101 defining an opening which is spanned by support 311, thus defining two apertures 310a, b. Sealing flap 312 is secured to housing 101 at support 311 in lieu of at flange 104 through the middle of sealing flap 312 instead of at an edge thereof (e.g., Fig. 1). As with the previously disclosed embodiments, sealing flap 312 is comprised of two

layers, a relatively pliable layer 313 and a relatively rigid layer 314. Again, the layers may be referred to as simply “pliable layer” and “rigid layer” respectively.

[0030] Sealing flap 312 may be comprised of pliable layer 313 and rigid layer 314 as two separate elements which are secured together to support 311. Although it is not shown in Figure 3, sealing flap 312 may also be one component wherein rigid layer 314 is laminated or bonded to pliable layer 313, as initially described with reference to Figure 1. Sealing flap 312 (or sealing flap assembly) may be secured to support by a variety of techniques known in the art. One method, known in the art, which will benefit a manufacturer of the invention, is heat staking. This is advantageous because it requires less individual parts as housing 301 including support 311 can be molded in one piece to include stakes (320a-c). In assembly, the step of heating the stakes may be automated, thus reducing time and costs.

[0031] Those skilled in the art will appreciate that, although the drawings depict flange 104, and thus valve seat 104 and sealing flap, being disposed vertically with respect to housing, flange 104 may also be angled with respect to vertical. For example, reference is made to Figure 4A, wherein depicted is pressure relief valve 400 including housing 401 defining at least one throughflow channel 405 and having an intake 402 and an exhaust 403. Disposed within housing inner wall is flange 404, the side of which facing exhaust 403 is valve seat 407, said flange 404 defining an aperture within

throughflow channel 405. Sealing flap 410 (or sealing flap assembly if a non-integrated sealing flap is used), covers aperture. In this embodiment, sealing flap 410 is secured to flange 404 by a single edge 408. Flange 404 is angled with respect to vertical, and thus, sealing flap 410, resting upon valve seat 407, is also angled with respect to vertical.

[0032] Figure 4B depicts a pressure relief valve with a throughflow channel 420 bifurcated vertically wherein first and second valve seats 421, 422 are canted with respect to vertical. First and second apertures 423, 424 are covered with first and second sealing flaps 425, 426, (or sealing flap assemblies if non-integrated sealing flaps are used).

[0033] Housing 101 may incorporate interlocks (not shown) to allow pressure relief valve to be joined with one or more like pressure relief valves. A variety of interlocking methods, known to those skilled in the art, may be employed. For example, as would be understood by those skilled in the art, housing may be formed such that a male interlocking member projects from housing 101 an outer wall. A female interlocking recess may be formed in the outer wall on the opposite side of housing 101 from male interlocking member and dimensioned such that a male interlocking member of a like pressure relief valve may be lockingly inserted therein, thereby coupling two pressure relief valves. Housing 101 may incorporate one or more

interlocking components on a side, and interlocking components should preferably be alternated male and female on any side of housing 501 to be interlocked with second pressure relief valve.

[0034] Interlocking two or more pressure relief valves together gives designers and manufacturers flexibility, over and above that afforded by the fact that the valve may be mounted independent of orientation. For example, often the designs for pressure relief of vehicle compartments occur as after-thoughts and designers and engineers are restricted to those designs for pressure relief valves that are currently on the market. If a designer desires greater pressure relief than is available with a single pressure relief valve, they may attach two or more valves together, again, in any orientation with respect to the source of pressure.

[0035] A possible consequence of using present invention is that in some orientations and embodiments, the valve may be susceptible to permitting dirt and water from the exterior environment into the compartment, or at least into housing 101 interior. To mitigate against this possibility a cover 500, an example of which is shown in Figure 5, may be employed with pressure relief valve. Cover 500 is dimensioned to fit snugly over, and may be secured to, the exhaust side of pressure relief valve housing 101. Cover 500 comprises a frame 501 preferably formed of the same material as that from

which housing 101 is formed. Cover 500 also comprises screen 502 that prevents in the passage of dirt and water, but also the flow of air therethrough.

[0036] As described above and shown in the associated drawings, the present invention comprises an apparatus for an orientation independent compartment pressure relief valve. While particular embodiments of the invention have been described, it will be understood, however, that the invention is not limited thereto, since modifications may be made by those skilled in the art, particularly in light of the foregoing teachings. It is, therefore, contemplated by the appended claims to cover any such modifications that incorporate those features or those improvements that embody the spirit and scope of the present invention.

ISSUES

The only issue on appeal is whether claims 1 through 17 are unpatentable under 35 U.S.C. § 103(a) over *Gies et al* (U.S. Pat. No. 5,355,910) in view of *Klomhaus et al* (U.S. Pat. No. 5,194,038).

GROUPING OF CLAIMS

Claims 1 through 17, of which Claim 1 is the sole independent claim, are pending in this appeal. The Examiner has rejected all of the claims of the

Application. Appellant believe that these claims fall into one group which is patentable. Set forth below in the argument section of this Brief are Appellant's reasons for believing Claims 1 through 17 are patentable.

ARGUMENT

Claims Rejections Under 35 U.S.C. § 103.

A. Overview of the Cited References

The Examiner finally rejected claims 1 through 17 of the present application under 35 U.S.C. § 103 as being unpatentable over *Gies et al* (U.S. Pat. No. 5,355,910) in view of *Klomhaus et al* (U.S. Pat. No. 5,194,038), referred to hereinafter as the '910 and the '038 patents, respectively.

I. The '910 Patent. The '910 patent teaches a one-way flap valve having a flexible layer (Fig. 2 at 24; Col. 3, ll. 41-47) that is overlaid with two rigid strips. The first strip (Fig. 2 at 34) is called a "mounting strip" to provide support for mounting the flap to a frame. *See* Col. 3, ll. 54-68. The second strip (Fig. 2 at 40; Col. 4, ll. 1-8) is bonded to the lower portion of the flexible layer, and serves to prevent warping and deformation of the flexible sheet. *See* Col. 4, ll. 18-22). The '910 patent also includes

a gap (Fig. 2, at 42) between the first and second rigid strips to permit opening of the flap. Col. 4, ll. 8-14. The flap of the '910 patent closes by solely virtue of gravity. Col. 3, ll. 32-35.

2. ***The '038 Patent.*** The '038 patent is directed to a valve with a one-piece flap that is integrally molded with the valve frame. *See* '038 Patent Col. 1, 47-53; Col. 2, ll. 52, 58. The flap and frame are molded such that the flap extends through the passageway *See* Col. 2, ll. 52-58; Fig. 3; Fig. 4, at 38a. The flap is drawn through the passageway to rest on the outer face of the frame. It is therefore, by virtue of the initially molded position that the flap is “elastically loaded” to a close the passageway. *See* Col. 2, 58-63. The '038 patent does not disclose or suggest being able to operate independent of its orientation to gravity. On the contrary, the flap of the '038 patent teaches only an orientation such that gravity assists in the closure of the flap. *See* Col. 2, l. 68 – Col. 3, l. 4. The frame upon which the flap is seated in the closed position to take advantage of the force of gravity to assist closure. *See id.*

B. Standard for § 103 Rejections

The Examiner bears the burden of establishing a *prima facie* case of obviousness under 35 U.S.C. § 103. To meet the burden of establishing a *prima facie* case, the Examiner must show

some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to . . . combine the reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference[s] must teach or suggest all the claim limitations. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, and not based on applicant's disclosure.

MANUAL OF PATENT EXAMINING PROCEDURE ("MPEP") § 2142 8th Ed., Rev. 2 May, 2004 (citing *In re Vraek*, 947 F.2d 488 (Fed. Cir. 1991)).

As set forth in the MPEP, the suggestion, teaching or motivation to combine prior art references may flow, *inter alia*, from the references themselves, and the knowledge of one ordinary skill in the art or the nature of the problem to be solved.

See also Winner International Royal Corp. v. Wang, 202 F.3d 1340, 53 U.S.P.Q. 2d 1580 (Fed. Cir. 2000); *In re Fine*, 837 F. 2d 1071, 5 U.S.P.Q. 2d 1596 (Fed. Cir. 1988); *In re Jones*, 958 F.2d 347, 21 U.S.P.Q. 2d 1941 (Fed. Cir. 1992). Although a reference need not expressly teach that the disclosure contained therein should be combined with another, showing of combinability, in whatever form must nevertheless be "clear and particular." *Winner International Royal Corp.*, 202 F. 3d at 1586 (emphasis supplied). If there is no motivation or suggestion to combine the references,

one of ordinary skill in the art would not have viewed the Applicants' invention as obvious. *See In re Dance*, 160 F. 3d 1339, 1343, 48 U.S.P.Q. 2d 1635, 1639 (Fed. Cir. 1998); *Gambro Lundia AB v. Baxter Healthcare Corp.*, 110 F. 3d 1573, 1578, 42 U.S.P.Q. 2d 1378, 1383 (Fed. Cir. 1997). (“The absence of such a suggestion to combine is dispositive in an obviousness determination.”)

The second criteria to establish a *prima facie* case of obviousness is that there must be a reasonable expectation of success. *In re Merck & Co., Inc.*, 800 F.2d 1091, 231 U.S.P.Q. 375 (Fed. Cir. 1986). Obviousness does not require absolute predictability. However, at least some degree is required. Evidence showing there is no reasonable expectation of success may support a conclusion of non-obviousness. *In re Rinehart*, 531 F.2d 1048, 189 U.S.P.Q. 143 (CCPA 1976).

The last criteria to establish a *prima facie* case of obviousness of a claimed invention is that all the claimed limitations must be taught or suggested by the prior art. *In re Royka*, 490 F.2d 981, 180 U.S.P.Q. 580 (CCPA 1974). “All words in a claim must be considered in judging the patentability of that claim against the prior art.” *In re Wilson*, 424 F.2d 1382, 1385, 165 U.S.P.Q. 494, 496 (CCPA 1970).

Further, no suggestion or motivation exists where the proposed modification, or combination, changes the principle of operation of a reference. *See* MPEP 2143.01, pp. 2100-132. In other words, the *prima facie* case fails where a proposed combination would “require a substantial reconstruction and redesign of the elements as well as a change in the basic principle under which the construction was designed to operate.” *Id.* (quoting *In re Ratti*, 270 F.2d 810, 813 (Cir. Ct. Pat. App. 1959) (emphasis supplied)).

Additionally, if an independent claim is not obvious under 35 U.S.C. § 103, then any claim depending therefrom is non-obvious. *In re Fine*, 837 F.2d 1071, 5 U.S.P.Q. 2d 1596 (Fed. Cir. 1988).

C. Claims 1 - 17

The Examiner rejected Independent Claim 1 under §103(a) as being obvious over the '910 patent in view of the '038 patent asserting that the '910 patent “discloses all of the limitations of the claims except for the relatively rigid layer (sic) operates to close the sealing flap irrespective of the . . . valve’s orientation with respect to gravity.” The Examiner then asserts that the '038 patent “discloses a rigid layer operating to close the sealing flap irrespective of the pressure relief valve’s orientation”

citing only the abstract of the '038 patent to support this conclusion. The remaining rejections are based upon these two references.

As shown below, the sole independent claim is patentable over this erroneous combination of references. It follows that so too are the claims that depend from it. Therefore, Appellant's arguments herein are directed to this combination.

1. **There is no suggestion or motivation, either in the references themselves, or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings.**

With the standard for a *prima facie* case of obviousness in mind, neither the '910 patent nor the '038 patent suggest or motivate one skilled in the art to combine them as proposed by the Examiner. A showing of a suggestion, teaching, or motivation to combine prior art references as required to find an invention obvious must be clear and particular and broad conclusory statements of the teaching of multiple references, standing alone, are not evidence. *See Brown & Williamson Tobacco Corp. v. Phillip Morris Inc.*, 229 F. 3d 1120, 1124, 56 U.S.P.Q. 2d 1456, 1460 (Fed. Cir. 2000). The mere fact that references can be combined or modified does not render the resultant combination obvious unless the prior art also suggests the

desirability of the combination. *In re Mills*, 916 F.2d 680, 16 U.S.P.Q. 2d 1430 (Fed. Cir. 1990). Neither reference suggests the desirability of orienting the valve independent of the direction of the force of gravity. Indeed, both references, as shown above, expressly contemplate, are designed to operate, and therefore teach, valves that operate only in one orientation such that the flap opens downwardly so that gravity either closes ('910 patent) or assists in the closure ('038 patent) of the flap. As such, the Examiner's assertion that the abstract of the '038 patent discloses operation independent of gravity mischaracterizes the disclosure.

a.) **The '910 Patent.** First, Examiner does list the specific limitations of the claimed invention disclosed by the '910 patent. However, study of the '910 patent reveals that the flap disclosed comprises a flexible layer that is affixed to the top of a framed opening. The lower portion of the flexible layer is overlaid by a rigid “strip” to aid in preventing warping and deformation of the flexible layer. The flap is described, and claimed, to have a gap in between the lower rigid strip, and an upper rigid strip (called a “mounting strip”) to “permit[] the sheet 24 to flex along the line defined by the gap.” The '910 Patent, Col. 4, ll. 10-11. The frame is disclosed to be mounted “vertically oriented” (Col. 3, l. 32) and “inclined from the vertical so that under the influence of gravity” the flap closes. *Id.*, ll. 34-5. This, in no way, teaches or suggests

the desirability of a two layer flap, as claimed, with a rigid outer layer that closes the flap irrespective of the direction of gravity. In fact, it teaches away from such an invention. Accordingly, attempting to combine this reference as the Examiner has done is improper.

b.) The '038 Patent. Likewise, the '038 patent does not suggest or provide motivation for the combination suggested by the Examiner. The flap of the '038 patent is disclosed only as an integrated part of the frame. It is also disclosed only as a single component, not a “layer” as described by the Examiner since the term “layer” presupposes at least two thicknesses.¹ The structure described in no way resembles or suggests the structure claimed in the present application. Moreover, contrary to Examiner’s description of the reference nothing in the abstract expressly discloses or implicitly suggests the notion of the flap operating independent of gravity.² Therefore, Examiner has still not provided the necessary showing of combinability as required to establish the *prima facie* case of obviousness.

¹ Webster’s Ninth New Collegiate Dictionary defines “layer” as, “one thickness, course, or fold laid or lying over or under another.”

² The disclosure actually provides that the “flap has a plastic connecting portion or living hinge molded *in situ* integrally with the frame and flap and formed of a more elastic plastic than that of the frame.” The '038 Patent, Col. 1, ll. 44-47. This does not suggest that the connecting portion is strong enough to bias the flap closed in, for example an upwardly opening orientation. As such, there is no enabling disclosure in this reference of a gravity independent flap.

c.) **No Suggestion to Combine.** Not only does these references not teach or suggest that they should be combined with another, but the Examiner has provided no showing of combinability, in any form, which is “clear and particular.” *See In re Dembicza*k, 175 F. 3d 994, 1000, 50 U.S.P.Q. 2d 1614, 1620 (Fed. Cir. 1999). In particular, because of the wide differences in the structures disclosed in the respective references, it is unclear as to how they could be combined to result in the present invention.

35 U.S.C. § 103 makes clear that the obviousness analysis should take place, “at the time the invention was made.” *In re Dembicza*k, 175 F. 3d 994, 50 U.S.P.Q. 2d 1614, 1616 (Fed. Cir. 1999). It is this phrase that guards against entering into the “tempting but forbidden zone of hindsight.” *Id.* “Our case law makes clear that the best defense against the subtle but powerful attraction of a hindsight-based obviousness analysis is rigorous application of the requirement for a showing of the teaching or motivation to combine prior art references.” *In re Dembicza*k, 175 F. 3d at 999, 50 U.S.P.Q. 2d at 1617.

The only motivation for the combination offered by the Examiner is at page 2 of the Detailed Action claiming, “one skilled in the art would find it obvious to

modify the system of [the '910 patent] to include a relatively rigid layer operating to close the sealing flap irrespective of the pressure relief valve's orientation with respect to gravity of ['038 patent] for the purpose of better flap performance in various situations." (emphasis supplied). This alleged motivation proposed by the Examiner, is vague at best, and certainly not "clear and particular." Moreover, if the Examiner is attempting to argue that the suggestion, teaching, or motivation to combine the '910 patent with the '038 patent flows from the knowledge of one of ordinary skill in the art, he has provided no evidence to that affect, and instead has offered only conclusory statements. Broad conclusory statements are not evidence of a motivation to combine those references as would support a claim of obviousness. *See Ecolochem, Inc. v. Southern California Edison Co.*, 227 F. 3d 1361, 1372, 56 U.S.P.Q. 2d 1065, 1076 (Fed. Cir. 2000).

The Federal Circuit recently vacated a Board of Patent Appeals decision that upheld an obviousness rejection. In *In re Lee*, 277 F.3d 1338, 61 USPQ2d 1430 (Fed. Cir. 2002), the applicant appealed rejection of claims based on obviousness arguing, as does appellant here, that the references proffered by the examiner failed to provide a suggestion or motivation to combine in a way to achieve the invention claimed. The Board announced that "[t]he conclusion of obviousness may be made

from common knowledge and common sense of a person of ordinary skill . . . without any specific hint or suggestion in a particular reference.” *Id.*, at 1341. The Board sanctioned the examiner’s reasoning in support of the obviousness rejection but did not provide any more than a restatement of it. It should be noted that the examiner’s reasoning in *Lee* is more detailed than that provided in the instant case.³

In vacating the Board’s decision, the Federal Circuit restated the law that “[t]he factual inquiry whether to combine references must be thorough and searching. It must be based on objective evidence of record. This precedent has been reinforced in myriad decisions, and cannot be dispensed with . . . The need for specificity pervades this authority.” *Id.*, at 1343 (citations omitted). The court found that “neither the examiner nor the Board adequately supported the selection and combination of . . . the references” finding the examiner’s proffered reasons “conclusory” and intimating that attempting to do so improperly “use[s] that which the inventor taught against its teacher.” *Id.* at 1343-4 (*citing W. L. Gore v. Garlock, Inc.*, 721 F.2d 1540, 1553, 220 USPQ 303, 312-313 (Fed. Cir. 1983)). *See also* MPEP 2143.01, p. 2100-130. In the instant case, examiner’s reasoning in support of the suggestion to combine, “for the purpose of better flap performance” is patently inadequate, since it is even less

³ The examiner in *Lee* supported the obviousness rejection by broadly concluding that a “demonstration mode is

thorough, specific and enlightening than that offered by the examiner of *In re Lee*.

Additionally, it should be noted that the Examiner in the present case attempts to combine the *function* of the '038 patent (rigid layer that operates to close the sealing flap) with the *structure* of the '910 patent to achieve the teachings of the invention claimed. Analogizing to the law anticipation, this is again improper since it is differences or similarities in structural limitations, not functional limitations, that determine the patentability of an invention. *See MPEP §2114*, p. 2100-60.

In summary, it is a basic tenant of patent law that the references must be considered as a whole and must suggest the desirability and thus the obviousness of making the combination when applying 35 U.S.C. § 103 to reject a claim or claims. *See In re Oetiker*, 977 F.2d 1443, 24 U.S.P.Q. 2d 1443 (Fed. Cir. 1992); *In re Eli Lilly & Co.*, 402 F.2d 943, 14 U.S.P.Q. 2d 1741 (Fed. Cir. 1990). The ultimate determination of whether an invention would have been obvious is a legal conclusion based on the totality of the evidence including underlying factual inquiries including the differences between the claimed invention and the prior art, and the objective evidence of non-obviousness. *See Brown & Williamson Tobacco Corp.*, 229 F.3d at

just a programmable feature” and that it is “user friendly.” *See In re Lee*, 277 F.3d at 1341.

1124. A review of the references indicate that they do not suggest the desirability of combining a gravity-dependent, non-integrated, flexibly opening flap having a rigid support from the '910 patent with an integrated, single-piece flap, having spring action but nonetheless gravity-dependent, to arrive at the claimed invention. Independent Claim 1, as amended, and, therefore, the claims dependent from it, are non-obvious and patentable over the references cited.

2. **The proposed combination changes the principle of operation of the '910 patent.**

Assuming that the structures of the '910 patent and the '038 patent can be combined, the apparatus of the '910 patent would not operate under the same principles taught in its disclosure. The MPEP provides that “[i]f the proposed . . . combination of the prior art would change the principle of operation of the prior invention being modified, then the teaching of the references are not sufficient to render the claims *prima facie* obvious.” MPEP §2143.01, p. 2100-132 (*citing In re Ratti*, 270 F.2d 810, 123 USPQ 349 (C.C.P.A. 1959))(emphasis supplied). The recent Board case of *Ex parte Cavigelli*, Appeal No. 2002-0558, (2003 WL 23174998 (Bd. Pat. App. & Interf.) is instructive on this issue. The examiner had rejected certain claims as obvious by substituting a non-ferrous core in a primary reference with a ferrous core to achieve the

structural limitations of the claimed invention. The Board held that because the primary reference “purposefully uses a non-ferrous . . . assembly,” the proposed modification would change the primary reference to a degree that was not permitted by the prior art. *See id.* at *5. In other words, “because the examiner’s proposal . . . would have required a change in the basic principle under which the reference was designed to operate, [the Board was] not persuaded that an artisan would have been motivated to combine the references.” *Id.*

Likewise, the proposed combination by Examiner in the instant case significantly alters the operating principles of the primary reference, the '910 patent. The flap of the '910 patent is expressly taught to close “under the influence of gravity.” *See* the '910 Patent, Col. 3, ll. 34-5. This is borne out by the inclusion of a gap between rigid strips so that the flexible sheet may pivot open and closed about the line defined by the gap without impedance. Further, the flap of the '910 patent is expressly disclosed to be a non-integrated flap. The '038 patent teaches a flap that is biased toward a closed position through integral molding in a position opposing the opening direction. This is completely inapposite to the teachings of the '910 patent and would apply a bias to a flap that is expressly designed to be gravity-dependent. As such, the combination of the '038 patent with the primary reference, the '910 patent, changes the

operating principles of the '910 patent. “[P]rior art references . . . must be read as a whole and consideration must be given where the references diverge and teach away from the claimed invention.” *Id.*, (*citing Akzo N.V. v. U.S. Int'l Trade Comm'n*, 808 F.2d 1471, 1481, 1 USPQ2d 1241, 1246 (Fed. Cir. 1986).

Since combination of these references would alter the operating principles under which the apparatus of the '910 patent operates, the combination is not obvious to those skilled in the art. Therefore, the rejection of Independent Claim 1, and its dependent claims, under §103(a) is not supportable and should be withdrawn.

3. The prior art references do not teach or suggest all of the claim limitations.

Even if the '910 patent were properly combinable with the '038 patent, the combination would not result in a device having all of the novel features claimed by Appellant in Independent Claim 1. The flap of the '910 patent is non-integrated and includes a gap between rigid support members to allow for flexible opening of the pliable sheet. The flap of the '038 patent obtains spring action by virtue of being molded integrally in a position opposite its operating position. Because of the great disparity in the two structures, it is unclear how they could be combined and therefore,

it would be speculative as what structural limitations the resulting apparatus would show. The two references, however, do not teach a non-integrated, two-layer flap with a flexible inner layer and a substantially co-extensive, relatively rigid outer layer. Therefore, the references cannot, by law and by the Patent Office's own rules, serve to render Independent Claim 1 obvious. *See* MPEP §2143.03, p. 2100-133.

Claims 2 through 17 depend either directly or indirectly from Claim 1 and thus incorporate the limitations of the independent claim. If an independent claim is non-obvious under 35 U.S.C. § 103, then any claim depending therefrom is non-obvious as well. *See id. See also In re, Fine*, 837 F.2d 1071, 5 U.S.P.Q. 2d 1596 (Fed. Cir. 1988). Accordingly, Appellant respectfully submits that dependent Claims 2 through 17 are in condition for allowance as well.

CONCLUSION

In conclusion, Appellant respectfully submits that, in view of the foregoing, and in view of the prior amendments and arguments in this case, Claims 1 through 17 define a gravity-independent pressure relief valve comprising a two-layer flap having a rigid layer and a flexible layer not taught or suggested by any of the above cited references, either alone or in combination. Accordingly, it is respectfully

submitted that Claims 1 through 17 are now in condition for allowance. An earlier notice of reversal of the Examiner's rejection is therefore earnestly solicited.

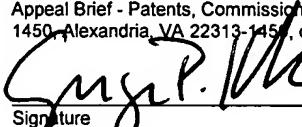
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APPENDIX OF THE CLAIMS INVOLVED IN THIS APPEAL

1. An orientation independent compartment air pressure relief valve comprising:
 - a. a housing, said housing comprising a throughflow channel for allowing fluid communication from an intake of said channel to an exhaust of said channel; and
 - b. a sealing flap secured to said housing such that said sealing flap closes said exhaust of said channel and is adapted to flexibly open in response to pressure, said sealing flap comprising a relatively pliable layer oriented toward said intake and a relatively rigid layer oriented toward said exhaust, whereby said relatively rigid layer operates to close said sealing flap irrespective of said pressure relief valve's orientation with respect to gravity.
2. The pressure relief valve of Claim 1, wherein said relatively rigid layer is bonded to said relatively pliable layer.
3. The pressure relief valve of Claim 2, wherein said sealing flap is secured by one sealing flap edge to said housing.

4. The pressure relief valve of Claim 3, wherein said housing further comprises interlocks whereby said housing may be coupled with a like housing.
5. The pressure relief valve of Claim 3, further comprising a support spanning the exhaust end of said channel.
6. The pressure relief valve of Claim 2, further comprising a support spanning the exhaust end of said channel.
7. The pressure relief valve of Claim 6, wherein said sealing flap is secured to said support.
8. The pressure relief valve of Claim 7, wherein said housing further comprises interlocks whereby said housing may be coupled with a like housing.
9. The pressure relief valve of Claim 8, wherein said sealing flap is secured to said support by heat staking.

10. The pressure relief valve of Claim 1, wherein said relatively rigid layer is a comb, said comb having a plurality of tines and overlays said relatively pliable layer.
11. The pressure relief valve of Claim 10, wherein said sealing flap is secured by one sealing flap edge to said housing.
12. The pressure relief valve of Claim 11, wherein said housing further comprises interlocks whereby said housing may be coupled with a like housing.
13. The pressure relief valve of Claim 12, further comprising a support spanning the exhaust end of said channel.
14. The pressure relief valve of Claim 11, further comprising a support spanning the exhaust end of said channel.
15. The pressure relief valve of Claim 14, wherein said sealing flap is secured to said support.

16. The pressure relief valve of Claim 15, wherein said sealing flap is secured to said support by heat staking.
17. The pressure relief valve of Claim 16, wherein said housing further comprises interlocks whereby said housing may be coupled with a like housing.